THE MOTOR AGE

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LEADING CONTENTS

PAGE

Is a National Organization—Objects and policy of the Automobile Club of America are broad in scope. Working for good roads. Storage and repair station in New York City. . 445

Getting an Engineer's License—What a person must be and know to obtain a steam engineer's license in Chicago. Possibility of operators of steam automobiles being required to pass board of examining engineers. . . 447

Californian's Automobile—Illustration. . 448

Careful Work of Canda Mfg. Co.—Spent three years in experimenting before offering motocycles for sale. Its recently perfected "Auto-Quadricycle". 449

PAGE

Types of Modern Swivel Joints—Universal use of divided axle and knuckle joint connection for steering wheels causes great variety of styles. 451

Trade News and Notes—Plans being laid by the Munger Vehicle Tire Co. for extensive operations. Combination ball and roller bearing hubs introduced. Kensington Automobiles. Other current items. 458

Where Theory or Promise Prevails—Three automobile tire patents. French scheme for changing speed of cable driven running mechanism. 458

General News and Comment. . 468

AUTOMOBILE CLUB A HEALTHY INFANT

OVER TWO HUNDRED MEMBERS IN THE A. C. OF A.—IS A NATIONAL ORGANIZATION—ITS PURPOSES ARE EDUCATIVE RATHER THAN SOCIAL—PRESENT INTENTIONS AND DOINGS—AN AUTOMOBILE STORAGE AND REPAIR STATION IN NEW YORK CITY

New York, Feb. 3.—Enthusiasm runs rampant in the furtherance of the various objects of the organization and existence of the Automobile Club of America. The active membership roll has reached the 200 mark and this embraces many members from distant cities, who preferred active membership to the associate membership permitted outsiders. In fact the associate roster contains less than twenty names.

Object of the Club

It must be understood that the A. C. of A. aims to be a national organization rather than a local club and to bear the same relation to automobilists that the L. A. W. does to cyclists, and to be to America what the national automobile clubs of Great Britain and France are to those countries.

The idea of a big semi-social club with club house and storage facilities has to a great extent been abandoned for the present, though such a house is one of the possibilities of the future for the local members. The club is now devoting itself to its real work of spreading the gospel of automobilism and looking after the conveniences and rights of the automobilists. So instead of a club house a commodious meeting room has been secured on the fourteenth floor of the Waldorf-Astoria. Here the members meet and swap experiences as well as

forge the bones of what will surely become a great fraternity.

Instructive Lectures

Tonight there will be a meeting to listen to addresses on the good roads crusade. Along this line of exchange of experiences is the series of lectures arranged by the library committee. The first one was delivered last Saturday evening by Alexander Fischer, on "The Gas Engine as Applied to Automobiles," and was illustrated by lantern slides. To bring about utter impartiality in the discussion of the subject the other sides of the motor problem will also be discussed by their advocates. A. L. Riker will talk on "Electric Automobiles" next Saturday evening and the week following J. A. Kingman will discuss "Steam Automobiles." Other motor vehicle problems will be reviewed in subsequent lectures.

It is expected that the country club house of the club at Kingsland's Point, near Tarrytown, will be furnished for use in time for the opening of the spring riding season.

The race for the Bennett International Cup and the various contests in view between Jarrott and Wridgway and the American autocyclists absorb the attention of many members.

Motor Vehicle Storage Station

A scheme for the convenience of owners of automobiles, which will doubtless become as popular in other cities as they did here from the very jump, has been put into successful operation here by the Automobile Storage and Repair Co. It consists in the establishment of automobile headquarters on a large scale, with storage, repair and exchange conveniences.

"Station No. 1" has been established in the spacious St. Nicholas rink, on Sixty-sixth street, just off the boulevard and not far from Central Park. Here automobiles may be stored conveniently near the riding district and cared for by expert mechanics. A repair shop is a part of the outfit and batteries may be charged. Supplies for gasoline, steam and electric motors are for sale and motor vehicles may be purchased or exchanged. The fee for storage and care has been placed at fifteen dollars per month.

Many of the automobile Club members keep their vehicles here, and in fact the conveniences of the "station" have driven for the present all thoughts of a club house from their minds. So successful has Station No. 1 proved that other stations will follow in different sections of the city.

Good Roads Discussion

New York, Feb. 5.—At the Waldorf-Astoria Saturday night there was held a meeting which might be called a union of the old and new forces of workers for good roads. It was the first meeting under the auspices of the Good Roads Committee of the Automobile Club of America. It was not a mass meeting, but rather one for the club members and those identified with the cause. Prominent workers in the League of American Wheelmen were present and the cyclists and automobilists were about equal in numbers.

The ultimate object to which the meeting was preliminary is the securing of a large appropriation by the State Legislature for highway improvement under the Higbie-Armstrong law. The speakers included: Gen. Roy Stone, E. G. Harrison, of the Office of Road Inquiry of the Department of Agriculture at Washington; Edward A. Bond, Chief Engineer of the State of New York; Henry I. Budd, Commissioner of Public Roads of New Jersey; Thomas C. Mendenhall of the Massachusetts Highway Commission, and President George F. Chamberlain.

Gen. Roy V. Stone commended to the club the propagation of what he termed "three great enterprises." The first he gave as steel roads; the second as the establishment of postal savings banks and the loan of their funds on county bonds exclusively for road improvement; the third undertaking should, he said, constitute a national object lesson in good roads in the shape of a trans-continental national highway.

E. G. Harrison of the office of Road Inquiry at Washington pointed out the economical advantages of good roads to the farmer and community in general. H. I. Budd, Commissioner of Highways

of New Jersey talked in reference to the state-aid system of road structure and improvement. E. A. Bond, Chief Engineed of New York state, stated that his department was ready with surveys, plans, etc., to build as many miles of roads as the Legislature would appropriate money for.

GETTING AN ENGINEER'S LICENSE

Since the introduction of the steam automobile various assembled bunches of "city fathers" have discovered a new chance for the restriction of doing things without license. In New York city one is forbidden to operate a steam motor vehicle unless he is a qualified and licensed steam engineer. It is probable that the same stand will be taken in other large cities. In such an event it will be profitable for users and prospective users of these vehicles to find out what they are "up against" in the matter of qualifying for a steam engineer's license.

The regulations governing the matter in Chicago are outlined in an ordinance as follows:

"An applicant for an engineer's license must be a machinist or engineer, having at least two years' practice in the manaugment, operation or construction of steam engines and boilers. * * * * * Each applicant must state upon the blank the extent of his experience; must be at least twenty-one years of age, a citizen of the United States, or have declared his intention to become such; must be of temperate habits and good character; all of which must be vouched for in writing by at least two citizens of Chicago or may be verified by oath by the applicant when required by the Board of Examiners. * * *

"No steam engine or boiler subject to the provisions of this ordinance shall be used, managed or operated in the City of Chicago, except by an engineer or boiler or water tender as provided herein, and who shall have been duly licensed as provided herein and who shall have and exhibit his certificate thereof. Any person who shall take charge of or manage or operate any steam engine or boiler, or any portion of a steam plant in the City of Chicago without a proper and valid license, as provided by this ordinance, shall, for each and every offense, be subject to a fine of not less than twenty dollars nor more than fifty dollars, and any person, agent, firm, company or corporation owing or controlling any steam engine, boiler, or other steam plant, who shall authorize or permit any person or persons without a proper and valid license as required herein to take charge of or to manage or to operate any steam engine or boiler or any portion of a steam plant, shall, for each and every offense, be subject to a fine of not less than fifty dollars nor more than two hundred dollars, and each day's violation of the terms of this ordinance, or any of them, shall constitute a separate offense."

In filling out an application to the board of examining engineers for engineer's license the following points must be covered regarding engine or engines of which applicant desires to take charge: number of boilers, diameter and length, number and size of tubes, size and kind of safety valve, blowing off pressure of safety valve, square feet of grate surface, size of feed pump, size of engine and kind of valve.

It is also necessary to have the application signed by two residents who in so doing certify to the following:

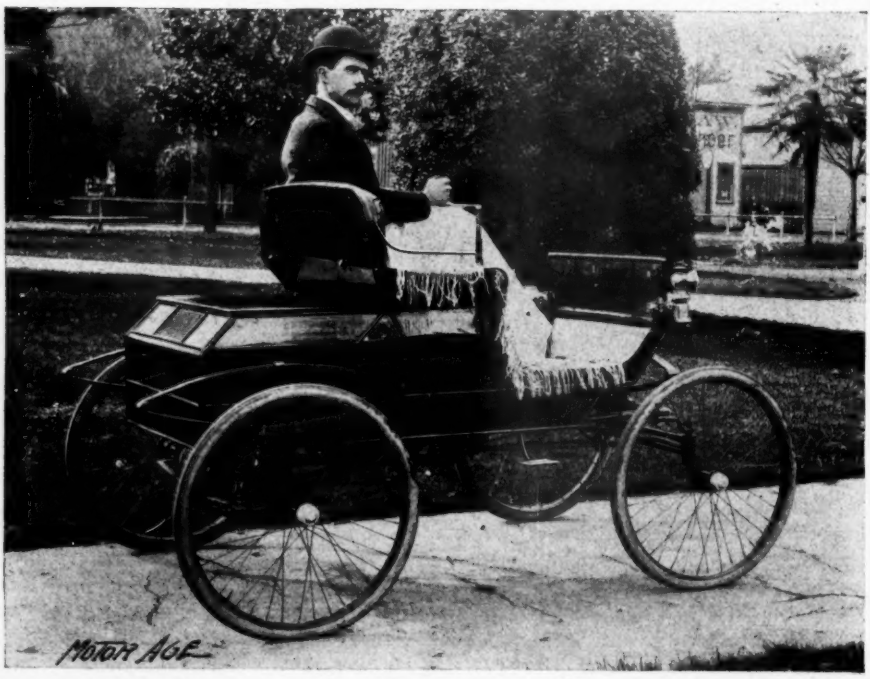
"The undersigned are well acquainted with ————————, his habits of life and qualifications, and know that he is trustworthy and reliable as a man of sober and industrious habits, and has to our personal knowledge has two years' experience as an engineer or machinist, and has acquired the necessary knowledge of the theory of steam as a motive power, as well as the requisite skill in the use, handling and management of steam

engines and boilers, and that this knowledge has been acquired by practice, and is such as to warrant his being licensed as a stationary engineer, and this statement we do hereby certify on honor."

The examination given the applicant is not exactly the same in all cases, but in every instance is supposed to cover the more important items concerning the practical management and care of engines and boilers. But little attention is paid to technical knowledge concerning steam engines. The main purpose of the examination is, of course, to determine whether or not the applicant is responsible for the safe care of the plant or engine which he desires to operate.

When questioned by the Motor Age representative the board of examining engineers stated that while no attention had as yet been paid to the matter it seemed probable that should operators of steam carriages be required to take out license they would be compelled to pass substantially the same examination as applicants for stationary engineer's license and that the general requirements in the line of recommendation, experience, etc., would be the same. This statement was made on the ground that such were the conditions imposed upon those licensed to take charge of the engines of steam street rollers.

While the knowledge required to obtain an engineer's license is not of a nature to worry a man of ordinary intelligence and mechanical insight, there is one requirement of the examining board which, if imposed, might come hard on some of the ultra-fashionable young men who are beginning to adopt the automobile style should they desire to operate steam carriages under a license, i. e., the necessary reference of two personal acquaintances that the applicant "is trustworthy and reliable as a man of sober and industrious habits."



MOTOR RUNABOUT MANUFACTURED BY F. S. JACKS OF NAPA, CAL.

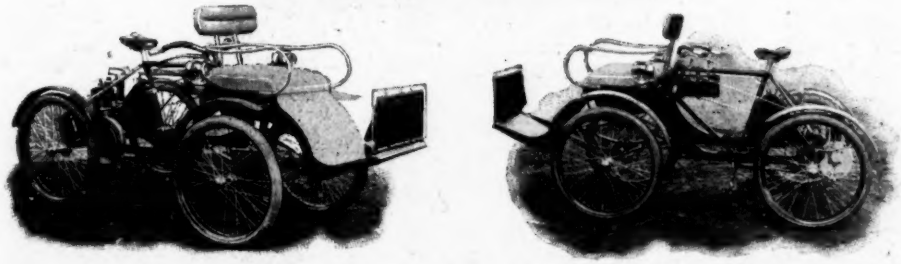
CAREFUL WORK OF CANDA MFG. CO.

New York, Feb. 4.—The Canda Mfg. Co. is one of the concerns—of whom, happily, there is a considerable number—which has been working carefully and intelligently on the automobile problem, without any blare of trumpets calling for cheap notoriety for the purpose of foisting stock of questionable value on gullible investors. The backers of the company have ample capital and are proceeding on commercial lines. They have avoided rather than sought notoriety, until such time as they felt that they had a vehicle of dependable merit. They feel that the time has now arrived.

The factory of the company is located at Canada station, Cartaret, N. J., and consists of a number of substantial one and two story brick buildings which were originally erected as railway car works but never extensively used. At the present time the company has one two story shop equipped with machinery in active operation, as well as portions of two other buildings.

The company began experimenting about three years ago and has kept at it ever since, spending a very large sum in purely experimental work. It began on delivery wagons, two of which stand in a corner of the Canda factory, as souvenirs of early work. Later attention was turned to the light gasoline engines suitable for use on motocycles. After long experimenting the firm has arrived at results that are satisfactory and is now engaged in the first lot of 100 commercial engines, fitting them to quadricycles of its own construction—the "Auto-Quadricycle," as the company has christened the little vehicle.

The entire vehicle, except wheels and tires, is made by the company, the castings and forgings being made at a plant devoted to other work, and in another location, but under the same ownership and management. Questioned on the subject, Superintendent L. B. Smyser stated to a representative of the Motor Age that the company would not consider the supplying of motors to other concerns. When the writer called at the factory last week the forgings, castings and material for the first commercial output of 100 quadricycles were in the factory and work was in full blast.



THREE VIEWS OF CANDA MFG. CO.'S "AUTO-QUADRICYCLE."

The design of the cycle, itself, differs somewhat from the accepted French and English models, inasmuch as the connections between the front wheels and the

balance of the cycle extend clear back to the rear axle-frame and are firmly bolted thereto. Moreover, these connections are not made of tubing, as is usual, but are made of angle iron and steel brackets riveted together, making an extremely strong and rigid connection.

The superintendent expressed himself as lacking confidence in tubing for such long reaches, fearing that, with rapid travel over rough roads and the vibration of the engine, the tubing would crystallize and break, to the danger and dissatisfaction of the user.

The front wheels may be removed by loosening a few bolts but, as yet, the company is making no provision for converting the machine into a tricycle.

"With our construction," said Superintendent Smyser, "it is a very simple matter to provide means for converting the quadricycle into a tricycle, but I do not believe it is advisable to do so.

"You see the tricycle is much harder to manage than the quadricycle; more vibration is felt on account of having three wheel tracks instead of two, the center one is the roughest part of the road, and, moreover, there is no advantage to be gained by converting the quadricycle, even if it is to be used by only one person. There is plenty of power and the difference in weight is not great. I believe that it would be dangerous to put tricycles in the hands of novices. I have had some experience with them myself and find that they lack stability. It is no pleasant thing to take a tumble with a machine of the weight of a motocycle, as I can testify to my sorrow.

"However, if we find that there is a demand for a convertible machine, we will doubtless furnish it."

In most other particulars than the front wheel connection the quadricycle is very similar to the same class of French and English vehicles, but the engine and transmission is improved and simplified. The rear axle, contrary to foreign usage, is exposed, being nickel plated.

The engine, as shown in the accompanying illustrations, is upright, mounted over the rear axle. It is of the Otto-cycle type, one and three-fourths horse-power and air cooled by means of radiation fins. The carburation is of a new design, and eliminates all moisture from the explosive mixture, thus producing complete combustion and absence of odor.

The engine is started, as usual, by pushing the pedals, connected by sprocket wheels and chain to the rear axle. The pedals run free, of course, from the rear axle and may be used as foot rests.

The tread of the vehicle is thirty-six inches and the wheel base forty-six inches. The wheels are twenty-six-inch, with two and one-half-inch pneumatic tires. The complete vehicle is seven and one-half feet long, three and one-half feet wide and weighs 350 pounds.

The price is $485, payable $150 on placing of order and balance on delivery.

Speaking of the price of the motocycle, President C. J. Canda said, "We find that the price which we have put on our 'Auto-Quadricycle,' is very attractive. There is a disinclination on the part of a great many prospective buyers of motor vehicles to invest $1,000 or more in a machine before they feel assured that it will do all that is claimed for it. To pay half the sum for even a less pretentious vehicle does not appear to be so great a drawback.

"Just a short time ago, an acquaintance of mine examined some of our printed matter, saying, as he did so, that he was interested in the motor vehicle problem and intended to become a purchaser at some time in the future but was going to wait until he was better satisfied, from the experience of others, as to the entire practicability of this class of vehicles. A moment later his eyes lit on the price of our Auto-Quadricycle and he was interested at once. 'That is something like it,' he said and ended by placing his order.

"After experimenting on vehicles for which, from their very nature, we would have to ask a high price, we decided to begin operations by placing on the market, a light conveyance of the cycle type which we could sell at a very moderate price.

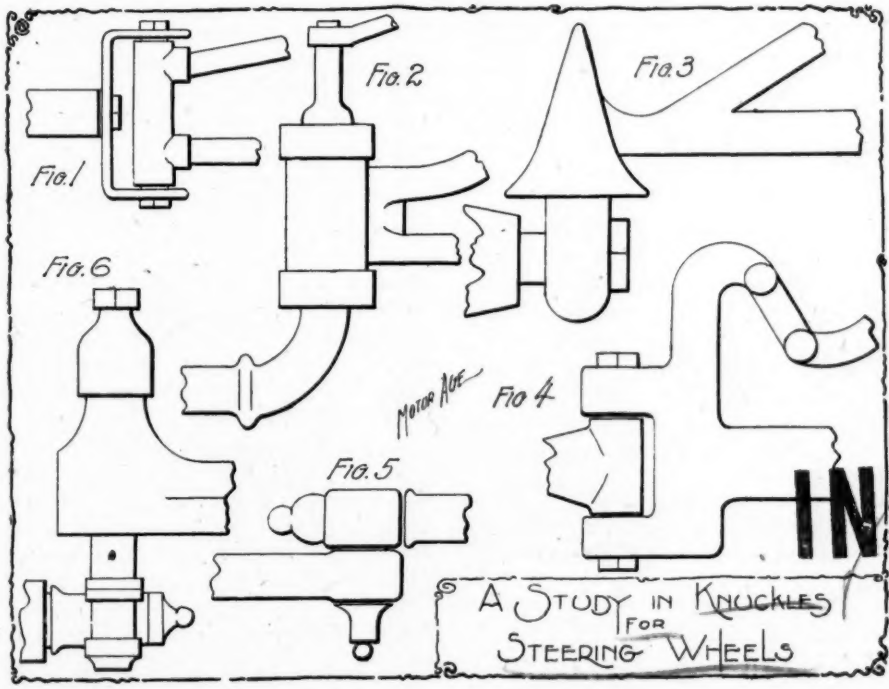
"At the price which we have adopted, we have only a small margin of profit, except we build in large quantities and are therefore obliged to sell direct to the user, but if we find that the demand turns

out to be all that we hope, we will be able to turn out the vehicles in large quantities and get the cost of production sufficiently low that we can dispose of our product through agents. We have made no definite plans, however, as to how we will proceed, but we are in a position to increase our output rapidly, as occasion may demand, and look forward to doing so.

"As soon, also, as we find the production of the Auto-Quadricycle progressing smoothly, we will turn our attention to the production of larger vehicles. Our engine can easily be made in larger sizes without resorting to water cooling."

TYPES OF MODERN SWIVEL JOINTS

In the construction of automobiles the one-piece axle and the fifth wheel have been generally discarded by builders. Very few are to be found and those are on vehicles on which the driving and steering wheels are identical. The divided axle giving a separate turning point to each wheel has taken the place of the old method and although it received little attention up to a few years ago, it has now been generally adopted in the construction of automobiles. Horse drawn wagons have been constructed for a number of years with a divided axle but never seemed to find favor with users. The advantages of a more rigid frame and greater ease in steering are doubtless sufficient for the retention of the divided axle on the automobiles of the future.



The many and various forms of swivel knuckles now to be found on the different automobiles of this country afford an

interesting subject of study. Even among the vehicles of one builder a number of models are to be observed. Thus for the light runabout one form will be made, for a heavier brougham or light delivery wagon another and the heavier truck will have still another form.

The accompanying illustration shows some common forms. Fig. 1 represents what is used on a light automobile of the four wheel runabout style.

Steel tubing is used in the frames. The swivel axle is hinged between the horizontal ends of the strap iron U supported on the end of the main shaft. It is undoubtedly the lightest form of knuckle in use.

The wheel axle in Fig. 2 is bent so as to pass vertically through the extremity of the forward truss. Simplicity is in this manner secured, as well as strength. Two builders, at least, have adopted this scheme, which is sufficient evidence of its excellence. Fig. 3 shows a style used on heavy carriages and deliveries. The axle is bolted to the vertical support which is forged to the required shape. Ball bearings are used to give freedom of movement although the knuckle is for heavy use.

For trucks and delivery wagons several builders have adopted a forged, two piece knuckle as shown in Fig. 4. Strength and simplicity are the noticeable features. The upper joint is to support the end of the forward body spring.

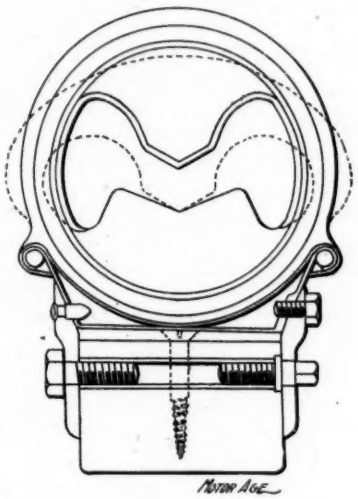
Any of these four would be easily recognized as of American design. Every nation, it seems, has certain characteristics worked into its mechanical products by which they can be easily recognized. In the same way the foreign origin of the knuckles, shown in Figs. 5 and 6 might be identified. In the first of these the support is below the wheel axle, giving a very low carriage, if so desired. In the other reverse is true.

Another plan of swivel construction which is being used by several builders, is to conceal, as far as possible, the device within the hub of the wheel. The hub is necessarily larger than otherwise in order to accommodate the joint. A vertical axle within the hub is adapted to turn on the end of the main shaft. The steering rods are attached to a projection from the interior bearing. This construction has been applied to both wood and metal wheels.

CURRENT TRADE NEWS AND NOTES

MUNGER TIRE PLANS

The Munger Vehicle Tire Co., which was recently organized to market the tire patented by L. D. Munger—and which is one of the factors of the Rubber Goods Mfg. Co.—has arranged to have the tires manufactured in the factory of the Hartford (Conn.) Rubber Works Co. for the ensuing year, and probably for a longer period. Mr. Munger recently made a trip to several western cities for the purpose of finding a suitable place for the manufacture of the tires in one of them.



The tire, it will be remembered, is a combination of pneumatic and cushion construction. The general form is similar to that of an ordinary pneumatic of heavy build such as must be used on automobiles. On the inside of the tire, however, are a pair of annular buffer ribs placed diametrically opposite to each other, one on the tread wall of the tire and the other adjacent to the rim. These buffer ribs have considerable body and are of porous rubber to give them a cushioning elasticity. Their adjacent faces are substantially parallel and may be flat, angular or curved so long as they are so arranged in relation to each other that when pressed together they will engage without slipping and form a substantial support for the load on the tire. In the preferred form, shown in the annexed illustration, the face of each rib has two surfaces at an inclination to each other, the face of the upper rib constituting a convex V and that of the lower a concave V to match.

If the tire strikes against a sharp obstruction it will indent until the ribs are brought into contact with each other, and thus receive the load in the same manner as a solid rubber tire for the time being without permitting the tire to entirely collapse so as to injure its side walls. The ribs therefore serve the same functions in respect to the tire that elastic cushions do for spring vehicles. Similarly in case of the deflating of the tire or when the vehicle is overloaded the ribs will be brought into contact and will carry the load like solid-rubber tires without injury to the tube or rim of the wheel.

The adjacent faces of the buffer ribs being V shape, interlock when brought into contact and thus prevent lateral displacement under certain strains and consequently insure against distortion of the tire.

The ribs may be briefly characterized as safeguards against the inconveniences and discomforts arising from inability of an ordinary pneumatic tire to stand severe strains, heavy loads and sudden meeting of obstructions. They also allow the use of a tire under less air pressure than common, and hence add to the softness and cushioning effect.

It is further to be noted that the mass of the outer rib thickens the tread of the tire so as to serve as an additional precaution against puncturing. As a further safeguard the inner surface of the outer rib is covered with a lining of rubber such as used for inner tubes, vulcanized

to the inner wall of the tube on each side. Thus the tire has the double protection of the ordinary inner tube outside of the outer rib and the connected lining for the other face of the rib. Hence if a tire be punctured through tthe lining-tube air cannot pass through the porous mass of the rib because of its impervious lining.

Mr. Munger's invention also includes means for securely fastening such or other pneumatic tire to the wheel rim, and with view to the prevention of creeping, chafing, etc. A concave thin metal rim with turned-over edges forming beads around annular strengthening wires is vulcanized to the inner periphery of the tire. This rim is double walled, its under wall having a flat bottom to lie on the wheel felloe. The tire is shaped to lie over the beaded edges of the rim with the intention that the soft rubber edge ribs or shoulders will strengthen the connection between the two in case lateral strains tend to separation. The flat rim around the wood felloe of the wheel, and which receives the rim vulcanized to the tire, is slightly beveled or inclined on its outer surface that the tire may be easily slipped on or removed from place.

On the side toward which the tire and attached rim are thrust in placing upon the wheel an annular securing ring is used which has a series of rivet-secured pins adapted to enter corresponding holes in the side face of the rim. This clamping rim, that with the stud pins, is permanently secured to the wheel felloe by means of bolts threaded into cross sleeves as illustrated. On the other side of the wheel is a similar clamping ring which is adapted to be slipped upon the wheel after the tire is in place, and is held by means of headed bolts screwing into alternate cross sleeves. It is adapted to be removed from the wheel by a series of backing-off bolts alternating with the headed tap bolts. Small tap screws connect this clamping ring with the rim of the tire.

Detailed description of the tire and account of three patents now issued for it were given in Motor Age in the issue of December 14, 1899.

The Munger Vehicle Tire Co. is incorporated for $600,000, of which $500,000 is in common stock and $100,000 in preferred. The latter represents cash, the working capital of the company. The officers of the company are: William M. Iven, president; L. D. Munger, vice president and general manager, and W. L. Towner, secretary and treasurer. Mr. Towner is the secretary-treasurer of the several rubber trust companies.

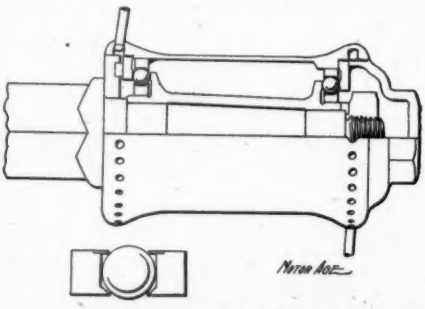
In addition to the three patents which have been already obtained by Mr. Munger and transferred to the company, he has others in the patent office which are expected to be allowed soon.

The company's first attention will be turned to the production of tires for heavy vehicles—primarily for the cabs in large cities. They will be designed for vehicles weighing from 2,000 to 4,000 pounds and will be four inches in diameter. The tires will probably not be produced in commercial quantities before the first of June. After tires for heavy vehicles are being produced in sufficient quantities the company will begin manufacturing for lighter vehicles.

THOR ROLLER BEARINGS

The Aurora Automatic Machinery Co., of Aurora, Ill., has recently introduced a novel roller bearing and has adapted the same to all forms of bicycle, automobile and light vehicle wheel and other bearings. The accompanying illustration shows the bearing applied to an automobile wheel of the suspension type.

The distinctive feature of the new Thor bearing is the manner in which that usu-



Combined Ball and Roller Bearing.

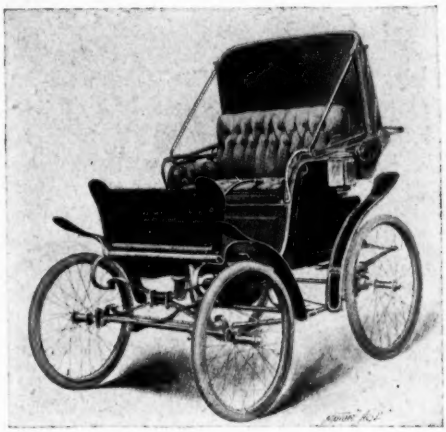
al bug-bear to roller bearing designers—end thrust—is cared for. The load on the bearing is divided into its two original sources of direction: Horizontal and ver-

tical, or parallel with and perpendicular to the axis. The former and greater load is supported by rollers running between accurately ground parallel and concentric circular surfaces. The end thrust load is supported independently, no attempt being made to combine the two by the use of one or other oblique forms of bearing parts. Instead each roller is bored through centrally and in this boring is placed loosely a steel ball whose diameter is slightly greater than the thickness of the roller. The stock at one end of the central hole is left to form a triangular bead or flange to prevent the ball from slipping through there. The retainer at the other end is a thin ring pressed into an annular seat after the ball is in position in the roller. The ball runs between parallel flat surfaces.

The bearing has no adjustment, the parts being made with great preciseness originally and it being claimed by the company that the wear is so reduced on account of insurance against wedging, binding, etc., that the efficient life of the bearing is from five to six times as long as that of a regular ball bearing. After the bearing has once been assembled no attention is needed except occasional oiling and cleaning and it is asserted that much less work in this direction is required than with other bearings and that the bearing will run dry with less loss in efficiency than any other.

Attention is called to the fact that while the end thrust in a bicycle wheel bearing is not considerable its importance in a motor or other vehicle wheel is greater and that proper means for preventing cramping and binding of bearings on its account must be taken if maximum efficiency be desired. Hence, it is urged, the combination of ball and roller bearing in the Thor vehicle hub enhances the running and wearing qualities to an unusual extent. By this arrangement, also, it is possible to give the bearings a greater spread within the same limits of hub size than with a bearing of usual construction.

The hub here shown is at present manufactured to take a shaft of seven-eighths-inch diameter at its large end. The barrel is five inches long, including dust cap, two and five-eighths inches in diameter and three and nine-sixteenths inches between centers of spoke holes. The shells are made from bar steel. Hubs are furnished with shaft ends long enough for welding. The carrying capacity of the hub is from five hundred to two thousand pounds according to the size of the axle. The company also manufactures a roller bearing hub for wooden wheels. It is built on the same plan but heavier in accordance with its purpose.



Kensington Electric Carriage.

KENSINGTON AUTOMOBILES

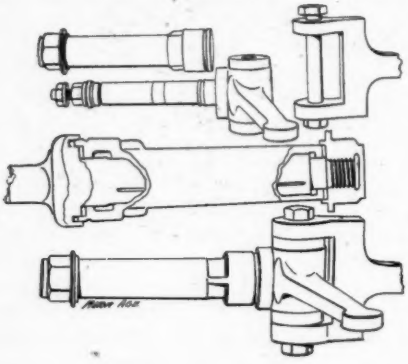
Several styles of electric storage battery vehicles are now being manufactured by the Kensington Bicycle Mfg. Co. of Buffalo. The accompanying illustration presents the appearance of one of the company's most popular types of carriages.

The company states that its vehicles will run considerably in excess of twelve miles per hour over ordinary country roads and that the speed regulation mechanism is especially convenient to the operator. The storage battery outfit includes a meter in convenient sight which indicates at all times the amount of electrical energy left in the accumulators. The wheels are of the bicycle type with ball bearings; front thirty-inch and rear thirty-four in diameter. A metallic key or circuit breaker is provided which can be removed on leaving the carriage, thus obviating danger of curious or malicious persons tampering with the vehicle.

The makers say that especial pains are taken in the manufacture and furnishing of the carriage box and cover.

DALZELL SWIVEL AXLES

In the accompanying illustration are shown external and partial sectional views of the swivel axle manufactured by the Dalzell Axle Co. of South Egremont, Mass. This company has not been actively interested in supplying the motor vehicle trade until recently, its former work having been almost exclusively for carriage makers. However, several swivel axles having been made for parties engaged in automobile manufacture other and more extensive orders from the same and similar sources resulted. The annexed illustration shows the swivel fitted with the company's full Collinge arm. It can also be supplied with the improved Collinge, said to be a very popular fitting among builders of high class carriages.



Dalzell Automobile Axles.

NEW DEPARTURE IN GAS ENGINES

New York, Feb. 4.—The prospects are excellent for the formation of a new company for the purpose of manufacturing internal combustion engines of radically new construction for motor vehicles, as well as the complete vehicles. The engine is a very ingenious one, designed by L. D. Munger after a long series of experiments, and embodies a principle that has not hitherto been applied to gas or gasoline engines. It provides means for performing all four functions of the Ottocycle engine at one and the same time, does away with the necessity of a heavy flywheel and avoids the undesirable feature of the explosion against nothing but mechanical resistance. Further description the Motor Age representative is not at liberty to give at the present time. He is in a position to say, however, that the engine presents decided advantages, not only theoretical but practical, as well.

After bringing his engine to a practical point, all of Mr. Munger's energies were demanded by the Munger Vehicle Tire Co., of which he is manager and he turned over to his associate, E. S. Dickinson, the explosive engine. Mr. Dickinson has succeeded in interesting ample capital and a company for the manufacture of the engine is on the eve of formation.

IN THE DEPARTMENT STORE

Philadelphia, Feb. 3.—"Automobile Department, Main Floor, City Hall Square, near Market." How's that for a department store invention? It seems like forcing matters a little, especially in view of the widespread belief that an automobile cannot be delivered until months after the order is filed; but John Wanamaker never does anything in just the same way as others. He is at least several days ahead of his department store competitors in adding an automobile department to his establishment at Thirteenth and Market streets. The department opened for business yesterday, and all day long crowds of people filed through the aisles critically examining the vehicles, asking questions and generally disregarding the "Hands off" placards which were liberally posted on various portions of the carriages. If this radical departure does nothing else, it demonstrates that as an advertising medium the automobile is of unusual value for such a store.

The "stock on hand" is made up of a $2,100 brougham, a $1,500 surrey and a $1,200 runabout—all the product of the General Electric Automobile Company of Philadelphia—besides Orient gasoline quadricycles and tricycles and a De Dion tricycle and trailer, these light machines at $600, $450 and $150 respectively.

Advertising is Wanamaker's strong suit, and he is evidently going to get all

there is out of motor vehicles in that line. Three-quarters of a column of his daily full-page ad is given up to automobiles, and if the young men who do this work can't distinguish a gasoline motor from a patent self-heating curling iron, they can at least make some very readable comments upon the trade in general and the machines in stock in particular. For instance, to-day the ad writer deplores the fact that an automobile costs so much money. "Too bad," he says, "that it is not brought within the reach of more pocketbooks! If it could be done, if it can be done, we will do it."

This is what he says about the $2,100 brougham:

"Here is a brougham in which you can sit and be driven quietly and safely by that wonderful incomprehensible force called electricity. You want to speak to your coachman—press the button. You want heat—supplied by electricity. You want to read—turn on your lamp. All this while you are going fifteen miles an hour, or as slow as you please."

The question of delivery is handled very gingerly. For instance, in speaking of the runabout he says: "We can deliver them within a 'reasonable time'—an expression of the makers. They guarantee delivery within six months, but it is our private opinion that we can get yours in a month or six weeks if you order early."

FOR INFLATING AUTO TIRES

Of the many forms of compressors manufactured by the Goulds Mfg. Co., of Seneca Falls, N. Y., several patterns are particularly well adapted for inflating pneumatic automobile tires. The line includes light hand pumps sufficiently strong and rapid in operation for pumping up the lighter class of tires and also several heavier pumps with compound hand levers sufficiently strong to inflate the heavy motor carriage tires. Similar pumps are also made for power drive. One of the most recently designed of the hand lever pumps is the "New Lightning." This pump has a solid brass barrel three and one-fourth inches in diameter and a stroke of five and one-half inches. Its working pressure is 100 pounds and the air displacement per stroke is slightly over forty-six cubic inches.

WHERE THEORY OR PROMISE PREVAILS

PROBLEMS WORKED OUT

CONSTRUCTION OF DIAMOND RUBBER CO.'S FLAT TREAD PNEUMATIC TIRE—SOLID RUBBER TIRE WITH CANVAS BINDING—A COIL SPRING AFFAIR—SPEED VARYING GEAR FOR USE WITH CABLE DRIVE

THREE TIRE PATENTS

No. 642,348, to Arthur H. Marks, of Akron, O., assignor to the Diamond Rubber Co.—This tire, which is now manufactured by the Akron company and used on several types of automobiles, has a combination of three objects. Its tread surface is broad and flat to increase traction, the tread wall is constructed to resist puncture, and the material is so placed that a saving of rubber is made over the ordinary pneumatic tire of its weight and character.

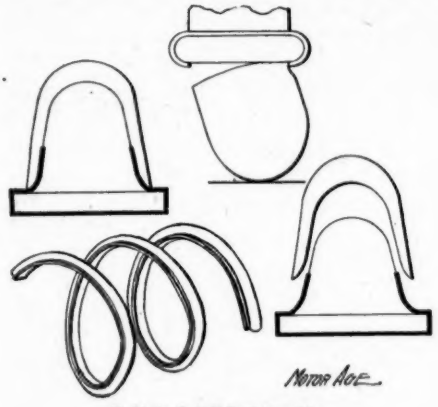
In making the tire, work is commenced by forming an inner tube around a mandrel which has a flattened portion running longitudinally along one side. This tube is then wrapped with one or more layers of fabric. A body of rubber is next built up on the flattened portion of the fabric above the flattened side of the mandrel. This rubber body consists of several thin layers or strips built up in a series successively decreasing in width until the entire body of the uncompleted tire is approximately circular in cross section. Fabric is again wrapped around the tire, this time about six layers being applied. A thickened tread portion is then built up of strips of rubber to form a broad, flat tread surface. A comparatively thin layer of rubber is carried entirely around the tire to cover the fabric completely.

Construction of Flat Tread Tire.

It is explained by the inventor that puncture resistance is not only obtained by the thickness of the tread but also by carrying the outer wrapping of fabric outward away from the inner air tight tube at the tread portion through which puncture is most likely to occur. Then also by making the inner tube with a flattened side much less rubber is needed to give a definite tread wall thickness than would be necessary were the tube circular and still maintained at the same distance from the outer wrapping of canvas and the tread surface.

No. 642,513, to F. H. Bolte of Peoria, Ill., assignor to the Peoria Rubber & Mfg. Co.—This invention relates to solid rubber tires for vehicles and has the object of providing such a tire which is less liable to become unseated from the rim, to separate and gap along its tread or to separate from its base than the usual form of solid tire. The inventor explains that two part solid rubber tires have been made in which the flat base portion is of less elastic material than the tread and that ofttimes lateral strains when in use have caused the separation of the tread portion from the rim base

as shown in one of the accompanying illustrations. To obviate this the tire is made in three pieces, exclusive of the binding fabric used. A strip or length of



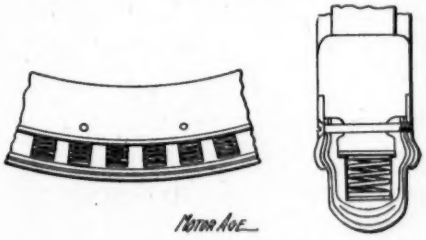
Bolte's Solid Rubber Tire.

rubber in cross section of substantially the same form as the completed tread portion of the tire, but smaller, is laid on the inelastic but flexible base and a strip of canvas laid on the two to bind them together, it being brought up from each edge of the base and laid over against the sides of the body rubber. A U-shaped band or rubber of the same density as the inside body portion is then laid over the whole to give the tire its complete form. The tire is then ready for vulcanization.

The invention is carried still further by the addition of a novel idea in the manner of vulcanizing. The tire is vulcanized while every portion of its length is set to a smaller curve than that of the wheel to receive it, this being accomplished by vulcanizing the tire while it is held as though it were a coil spring as shown in one of the annexed figures. When opened and spread upon the wheel the tread will be compressed constantly and the danger of cutting and gaping much reduced. The patent sheets also show several modifications of the manner of applying the canvas binding and of forming the split tread body of the tire. In one of these the tread portion of elastic rubber is made in one piece, slits being cut into the sides for the reception of the edges of the canvas.

The inventor points out that while tires have been constructed whose tread portions have been strengthened with fabric and which have been secured to the rim by canvas, his idea of using the fabric in the manner specified, to bind together more securely two rubber portions of different densities, is original.

No. 642,189, to H. A. Whiting of New York city.—Mr. Whiting reverts to the old coil spring method for obtaining elasticity in a vehicle tire. His tire consists of a soft rubber body in which is imbedded a series of separate and independent coil springs, as shown in the illustration, and a tread covering of harder and more tenacious rubber than that comprising the inner body. Strips of canvas may be used to strengthen the outer casing, which is vulcanized together with the body that in the completed tire the two may be integral. The inventor claims that he thus obtains great wearing quality in the tread and that the soft inner body imparts the necessary flexibility and elasticity to the tire, aided by the springs. Each side of the tire is provided with an annular bead which engages a depression in an annular metal ring, bolted to the wheel felloe and constituting the attach-



Springs Furnish Elasticity.

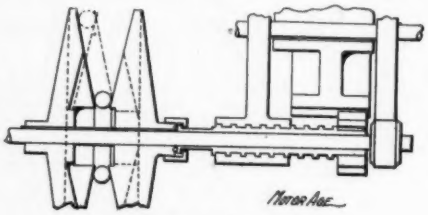
ment device. The soft rubber body of the tire also has beds formed along its respective edges to engage annular recesses in the rim to further secure the fastening of tire to rim. The side clamping ring bolts pass through the inner extended edges of the tire and thus prevents creeping.

NOVEL SPEED CHANGE

French letters patent have been issued for a speed change mechanism which possesses novelty even though its worth has not been established commercially.

It also has the advantage of simplicity and produces gradual variation and not merely definite changes at stated intervals.

Secured to the driving shaft by spline and groove connection are two conical



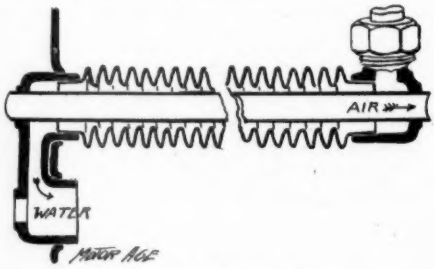
Simple Speed Change Gear.

faced pulleys arranged oppositely to each other with regard to the inclination of their adjacent surfaces. One of these is arranged to be movable lingitudinally on the shaft and is shifted by a worm gear sleeve operated by a spur gear and pinion. The spur gear is mounted on a counter shaft and is rotated by the operator by any suitable means. The connection between the shift worm sleeve and the movable pulley is made by means of a ball bearing end thrust and flanged yoke.

Power is transmitted to the driven shaft by means of a cable running in the narrow V formed between the two conical pulleys. These are further arranged in their relation to each other that they may be made to overlap, this being accomplished by alternate radial flanges and grooves in their adjacent faces. When they are as far apart as the variation limit allows the cable runs close down toward the center, but as the operator forces the movable pulley toward the other, by means of his actuating gear and worm, the cable is displaced and rises toward the periphery of the two-part pulley. Its extreme outward position is shown in the annexed illustration by the dotted lines. There being on the driven shaft a corresponding double pulley actuated in the same manner and at the same time but in the opposite direction, the driving cable may be made to gradually or swiftly assume an outward position on one and a central position on the other or be placed at any intermediate location, the opposite action of the two-part pulley equalizing the length of cable required at all times. The gear will operate equally well for both forward and backward driving. The main point concerning its practicability questions upon the desirability and efficiency of cable transmission for motor vehicle drive.

FRENCH WATER COOLER

The accompanying illustration shows in section a scheme proposed by a French motor designer for water cooling tubes. The tube has deeply corrugated walls forming radiator vanes on the exterior. Through the longitudinal center of the tube runs an air pipe. The air passes by the tube, striking the radiator vanes, and



Air Cooled Water Tube.

through the central pipe in the opposite direction from the flow of water and thus keeps the latter cooler than were the water pipe surrounded by air cooled walls only on either inside or outside.

ADVANTAGES OF MULTI-CYLINDER MOTORS

RESPECTIVE MERITS OF TWO, THREE AND FOUR-CYLINDER GASOLINE ENGINES OF VARIOUS TYPES COMPARED—MANY QUESTIONS TO CONSIDER IN SELECTING AN ENGINE TYPE—ADAPTABILITY TO VEHICLE BODY PROPORTION AND CONSTRUCTION AN IMPORTANT ITEM—USE OF VEHICLE TO BE CONSIDERED

Leaving out of consideration motor tricycles, it may be said that by far the greater number of gasoline vehicles built are equipped with engines of two or more cylinders. While it is easily seen that in some respects the single-cylinder engine would be greatly preferable to an engine with several cylinders, when all points are considered, the balance of advantage seems to be in favor of multi-cylinder engines, urges a contributor to the Horseless Age. The advantages gained by the use of multi-cylinder engines are lighter weight, steadier running, and, in some cases, greater compactness. The number of cylinders to which makers have so far limited themselves is four but with the various relative positions of the cylinders and different forms of cranks a great number of constructions can be obtained.

Taking up first the double-cylinder engine, we have the following variations: Twin cylinder with single crank, twin cylinder with double crank, opposite cylinder with single crank, opposite cylinder with double crank, and, lastly, double-cylinder engine with center lines of cylinders making an acute angle (usually about twenty degrees) with each other, and the plane through center line of cylinders at right angles to center line of crank shaft.

Reduction of Fly Wheel Weight

The reduction in weight gained by the use of multi-cylinder engines as compared with single-cylinder engines is largely the difference in the weight of fly wheels required. In a double-cylinder engine of the same power as a single-cylinder engine the impulse due to the explosion is only half as large as there are twice the number of explosions in a given time, an equal angular velocity being assumed for the two cases. But owing to the lighter weight of the reciprocating parts, the more nearly balanced motion of these parts and the shorter stroke, the double-cylinder engine may be operated at a considerably higher speed than the single-cylinder engine, and the ratio between the forces of explosion will therefore be even greater than that given.

In a twin-cylinder engine with single crank the explosions occur at even intervals, and there is one explosion for every stroke; but in a twin-cylinder engine with double crank the two explosions occur during the same revolution, while during the next revolution there is no explosion. With a single crank there is but one idle stroke between explosions, while with a double crank two idle strokes and two power strokes occur one after another. For this reason a twin-cylinder engine of given bore and stroke requires considerably less fly wheel capacity when provided with a single crank than when provided with a double crank.

With a single crank the pistons and connection rods of both cylinders move forward and backward at the same time, and as the back and forth motion of these parts is not counterbalanced, such an engine vibrates as much as a single-cylinder machine. In a twin-cylinder double-crank engine, however, while one piston moves back the other one moves forth and the motion of the pistons is very nearly balanced.

Combination of Advantages

The advantages of these two forms are combined in the opposite-cylinder double-crank engine. Here the explosions are evenly spaced and the balance of the reciprocating parts is more complete than in the twin-cylinder double-crank engine, for the reason that the center lines of the cylinders are nearer together. This type of double-cylinder engine has been much used for motor vehicle work. It is, together with other forms of opposite-cylinder engines, subject to the objection

that they are not nearly as compact as twin-cylinder engines. Sometimes opposite-cylinder engines are placed crosswise in the wagon, but this cannot be done with engines of more than five-inch stroke, as with engines of longer stroke the length of the engine and consequently the width of the wagon body would be too large.

Position on Vehicle Important

When placed across the wagon and in front of the operator's seat, as in some French machines, the valves and igniters are easily gotten at. But when placed as usual, lengthwise in the wagon, one cylinder head comes under the seat and the valves and igniter of this cylinder are not very accessible. The wagon body has to be of extraordinary length to accommodate the engine.

The center lines of the cylinders are nearer together in the opposite-cylinder engine than in the twin-cylinder engine, and for this reason the width over the bearings of an opposite-cylinder engine is less than the width over the bearings of a twin-cylinder engine, with the same cylinders. This is a rather valuable feature, as the speed varying mechanism is placed as a rule on an extension of the engine shaft and space across the wagon body is limited.

Multiplicity of Patterns

The last-named type—double-cylinder engine with the center lines of cylinders making an acute angle with one another—has been used by Daimler and others and has the advantage of great compactness, both in length and width. With a single crank the explosions are nearly evenly spaced; but the motion of the pistons is not balanced. A double crank cannot be used with this type, as the middle crank arm would interfere with the connection rods. This could be remedied by giving the cylinders an offset against each other in a direction parallel with the crank shaft, but such a proceeding would increase the width of the engine and it would then have little advantage over a twin-cylinder engine, which is, of course, easier to build.

The forms of double cylinder engines enumerated do not, of course, include every possible construction. In attempts to produce perfectly balanced engines, double-cylinder machines with separate cranks, geared together, have been made, and also have the so-called double-piston engines been made in double-cylinder form. In the latter type the explosion occurs between two pistons which move in opposite directions. The crank is sometimes placed at one end of the cylinder, at others centrally below the cylinder. These engines, while presenting an undoubted advantage from the view point of balanced running, are somewhat complicated, and the increased number of bearings to be looked after is certainly a strong argument against their general adoption.

Types of Triple Cylinder Engines

In triple-cylinder engines the three cylinders may be placed side by side and the engine be provided with a triple crank, of which the separate cranks are 120 degrees apart, or the three cylinders may be placed in a plane making angles of 120 degrees with each other. In the latter case only a single crank is required. In a triple-cylinder engine with cylinders side by side and cranks spaced 120 degrees, the motion of the pistons, connection rods and crank is balanced and the explosions occur at even intervals. Such an engine runs therefore quite steady and requires but a small fly wheel. It can also be built very compactly, and the only objection to it is the multiplicity of parts.

Arrangement of Four Cylinders

Four-cylinder engines have been used by a number of automobile builders, and especially for powerful racing machines. At first the difficulty with these machines was that they required too much electricity for ignition, but now that spark generation can be had, this difficulty has been solved.

The usual arrangement of the cylinders is two and two together on opposite sides of the crank. With a double crank an explosion can be had at every stroke, or, as is sometimes done, two cylinders at opposite sides of the crank may be operated simultaneously, which equalizes the pressure on the cylinder heads and thus reduces the vibration of the engine. In the latter case, of course, the explosions are one revolution apart and a larger fly

wheel is necessary. In a four-cylinder engine of a capacity sufficient to propel an ordinary pleasure vehicle, the dimensions of the cylinder are small, and such engines can therefore be easily placed crosswise in the wagon body. It is also possible to make jacketless engines of considerable size when four cylinders are employed.

Selection According to Purpose

The question of the number and relative position of the cylinders of the engine is always one of the most interesting ones to be solved when starting out to design a gasoline vehicle. That there is no solution which fits all cases ought to be apparent from the fact that for tricycles and very light vehicles or voiturettes the single-cylinder engine is almost universally used, while for pleasure and business vehicles of greater weight multi-cylinder engines are in the lead. There are other considerations aside from the weight of the vehicle which determine which form of engine is best suited to a particular case. For a fine pleasure vehicle, for instance, it is quite essential that there be as little vibration as possible, while for a racing machine great power is one of the most serviceable qualities.

The question of number of cylinders is sometimes argued as follows: If two cylinders are better than one, then three cylinders are better than two and four cylinders still better than three. But this reasoning is entirely fallacious, as is easily apparent when following it out a little further. Of course, the evenness of the power increases with the number of cylinders, but so does the complication, and there is for every case a happy mean which best satisfies the conditions.

Minor Considerations

Much has been said for and against the advisability of concealing the machinery in the body of the vehicle. It is stated that it is always a pleasure to look upon any well proportioned machine, but at the present time purchasers are mostly taken with the ghost-in-the-box idea, and have a fancy toward an invisible something which propels the vehicles at top-notch speed. When the machinery is to be placed inside the wagon body it must of course be very compact, for otherwise the vehicle becomes a machinery box on wheels with a carriage seat on top. For this reason the twin-cylinder engine is often preferred to opposite-cylinder engines.

With a number of cylinders close together, as in twin or triple cylinder engines, a single feeder or vaporizer may be used for all. With opposite-cylinder engines this cannot well be done, as it is desirable to have the vaporizer close to the intake valve.

GENERAL NEWS AND COMMENT

MANY COMPETITIONS ARRANGED

Paris, Jan. 30.—The Velo has arranged for next year several important automobile competitive events. Several of them are annual affairs managed by the Velo. April 15 will be run the Paris-Roubaix motocycle road race. The course is about 480 miles. There will be a contest April 26 for electric vehicles having at least two seats. This will be a contest of running capacity. All vehicles will start at the same time and run with a minimum speed of ten miles per hour. The carriage which runs the farthest on its original storage battery charge will be declared winner. The entry fee is $20, and the winner will receive fifty per cent of the receipts, and second thirty per cent, and the third twenty per cent. A motocycle road race, covering a course of 100 kilometers, will take place May 3. The vehicles must not weigh over 550 pounds, but may be of the type which allows the rider to assist the motor by pedaling. On May 10 a similar course will be covered by motor vehicles, having either one or two seats and weighing under 880 pounds. The same distance will be contested on May

17 by motocycles; whose weight does not exceed eighty-eight pounds. On May 23 the regular Paris-Bordeaux motocycle and motor vehicle road race occurs. The entry fee for large vehicles is $40, small vehicles $30, and motocycles $20. The winner in each class will receive forty per cent of the receipts in that class, the second thirty, the third fifteen, fourth ten, and the fifth five per cent.

Besides these events, several other minor contests and races for shorter distances will be run at various dates throughout the season. It is stated that the total of prizes for events arranged by the Velo will amount to nearly $15,000.

COVER ILLUSTRATION

The vehicle presented on the front cover of this issue of Motor Age is a French voiturette, the Peugeot. It has been recently introduced into South America.

MUST HAVE ENGINEER'S LICENSE

Washington, Feb. 3.—The District Commissioners have added a new clause to the police regulations providing that any person who shall operate in the District of Columbia any vehicle propelled by steam without first having obtained a license to do so from the board of steam engineers shall, upon conviction thereof be fined not less than one nor more than forty dollars for each such offense.

The first license issued under the new regulation was granted to Chas. E. Foster, local counsel for the Locomobile Company of America.

POLICEMEN LACK WISDOM

Several policemen of the north side, Chicago, recently displayed an unseemly amount of virgin innocence regarding the automobile. One night last week a very modern young man betook himself in his electric carriage to a party. He left the vehicle standing in the street.

A lonely patrolman spied the vehicle early in the evening but gave it only passing thought till he made a prefunctory trip along the same beat about two hours after midnight. The carriage was still there. It worried him. It might catch cold. It should be taken to the station. So he rang for assistance and soon gathered around him about a half-dozen noble guardians of the public weal all willing to help save the unfortunate auto. They began by pushing, then they resorted to pulling. The electric was obstinate. A rope was sought, tied to the front axle and the policemen all took a mighty heave. The progress was easily measured in inches. Then one, bolder than the rest, climbed into the carriage and essayed the "handles." Several of the others hung themselves around on various parts of the vehicle to watch developments. For some time there were none. Then the right thing was touched and down the street started the auto with a couple of scared "cops" in it, another hanging on behind because he was afraid to let go and the rest viewing the departure from the rapidly lengthening distance. The policemen in the carriage were just wondering what they were going to strike and when it was going to happen, when a couple of young men in party clothes came tearing down the street and jumped into the runaway carriage claiming it as their possession. The policemen were too meek to offer either apology or comment.

EASILY CONVERTED

The following fable of a pious priest and an automobile is related Der Motorfahrer:

At a little place on the coast of Brittany, where the Parisian comes not, and ancient manners and costumes still hold sway, lives a good priest, who, till two months ago, consigned all automobiles and their riders to perdition. Satan's handiwork, inventions of hell, and other pretty names he called them. The good priest hastily crossed himself when he met such an instrument of the devil on the village roads. Benzine stink or sulphurous vapor of the pit alike he abhorred. In fact, he waged a war to the knife against the modern vehicle. Now it happened that one evening the priest had to take the sacrament to a dying man. It was a wild night; wind and rain made him hesitate. He must hasten quickly two miles if he wished to find

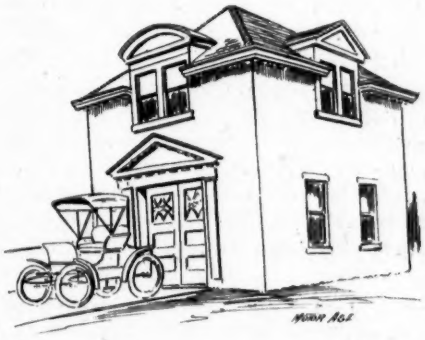
the unfortunate man alive. The sky was black, the roads soaked; the priest did not deliberate, he set out in it hastily, when up came an automobile. "Which is the way to Saint Gothbert, please?" said the driver. "Saint Gothbert," thought the priest, hesitatingly, "Why, I have got to go there myself." Then, after thinking a moment, "Shall I show you the way; in that case I must invite myself to sit beside you." Twenty minutes later the priest administered the sacrament to the dying man. When anyone asks him now about automobiles, he says:—"Ah, my dear sir, an invention blessed of God," and relates the above incident.

SCARCITY OF DRIVING SHOOLS

Writing from Paris, a correspondent to an English contemporary remarks that it is curious there does not exist in that city, notwithstanding the popularity of automobilism, any institution where novices can obtain a thorough course of tuition in the driving and management of various types of cars, the more so as every automobilist is required by law to take out a certificate of competence, which can only be obtained by passing a theoretical and practical examination before an official appointed by the prefecture of police. It is probable, however, that this regulation is occasionally ignored, and that today there exist several chauffeurs driving regularly who hold no such certificate. A number of these are accomplished drivers, who have simply not taken the trouble to comply with the law; but, on the other hand, several are novices, whose eccentricities are a source of danger to themselves and the public. The large firms and agencies certainly initiate their clients into the mysteries of the machine that they may happen to purchase, and frequently a servant goes through a course of instruction to enable him to look after a car, but no organized school exists in Paris. The foundation of such a school would do much to minimize the accidents which occur, happily not many, but more than is good for the prosperity of the industry. A combination of the leading makers, each supplying a car and competent instructor, might enable the formation of an institution where driving could be taught at a moderate fee.

AN AUTOMOBILE STABLE

The accompanying illustration presents a stable that is strictly up to the times for it is an automobile stable and its occupant is such a cleanly one that the owner, who is a doctor, has fitted up a laboratory above the stall room, if a drained cement floor on which stands ready for use at any time a gasoline driven carriage may be called a stall. This stable was recently built by Dr. Zabriskie of Brooklyn, who after a trial of a year and a half has adopted the automobile exclusively for his professional travel, sold his horses and erected this building for the accommodation of his auto.



MOTOR WAGONS FOR THE "DRUMMER"

The usefulness of automobiles to medical men is now placed beyond doubt, but another important class is in danger of being overlooked; it is a class that has as yet given little attention to the motor vehicle. Such class is that large and important section known as commercial travelers. There are many hundreds, if not thousands, of these, carrying a little luggage in the way of samples, to whom a suitable car would be a very great boon indeed, says the Autocar of London. The majority of them work small towns and the larger villages, as well as the larger towns, and their necessity for relying mainly upon railways for traveling about causes them to be at the mercy of timetables, and, therefore, in a great measure restricted in their journeys. Many com-

mercial travelers, that is the younger and more robust of them, and where appearances allow it, are using cycles, but when heavy samples have to be carried about or the traveler is "not so young as I was, sir," cycles are impossible. For short in and out journeys horses are made use of, but that does not at all solve the difficulty, as the journey must be commenced and finished at one point, unless someone is taken on the vehicle to drive it home again. Even then the distance is very restricted, also the pace, and the cost is heavy.

The whole difficulty could be easily solved by a motor carriage. Cross-country journeys, places not well served by railways, and other places difficult of access, could be easily and expeditiously visited, and there would be no catching of trains, so that the hurried visit in one place or the enforced lengthened stay in another would be done away with. Just sufficient time could be spent at each place to complete the business in hand, and, that over, a start could be made for the next town, and this with entire disregard of time tables or catching trains.

Another benefit would be that the samples, etc., could be easily carried, also any change of clothing. For motor vehicle travel cycle clothes would not be necessary, the usual habiliments of the "drummer" being worn, an advantage that will carry great weight. It is almost superfluous to add that to drive a car is not a dirty job, but, if desired, a youth could be taken, but that is hardly necessary. The distance per day could average pretty nearly a hundred miles, and the car would be always ready, and could be taken to the customer's door, and, as automobiles are not as yet common objects, the advertisement would be a valuable one.

As to the type of car, that depends entirely on the needs of the traveler concerned. Any maker would willingly design a car for any special need, and with any desired fittings. For heavy or bulky goods a full-sized car would be the thing. The cost of running would work out at under two cents per mile, but this, of course, depends on the size and power of the car used.

The great drawback from the traveler's point of view is the cost of a good motor carriage, but there are many men who are working for rich firms on profitable work, and they would soon pay for their cars—even if their employers would not bear some of the outlay—in the saving they would effect in time and money, not to mention the greater volume of business that the possession of an automobile would enable them to obtain. It is hardly necessary to mention that many travelers would find a motor tricycle quite sufficient for their work, and in these cases the question of first cost is not such a serious one.

CURRENT BREVITIES

A large soda water manufacturing firm in New York city has placed in delivery service a Riker electric wagon.

It is stated in English papers that a company has been formed under the title of the Hiram S. Maxim Automobile Syndicate, with $125,000 capital.

The latest trust story is a recently floated fable rumoring the organization of a $200,000,000 company to amalgamate and control both the bicycle and automobile industries in this country.

Space writers are heralding the fact that W. J. Bryan has ridden in an automobile. Perhaps the day is coming when it will be a matter of newspaper comment for a public man to ride in anything but an automobile.

Park Commissioner Clausen, of New York city, who at first put up a strong fight against the admission of automobiles to Central Park, has receded so far from his original stand as to go automobile riding himself.

Owners of gasoline vehicles should remember that it pays to find out whether or not a carburettor leaks before burning a newspaper under it to take the frost out.

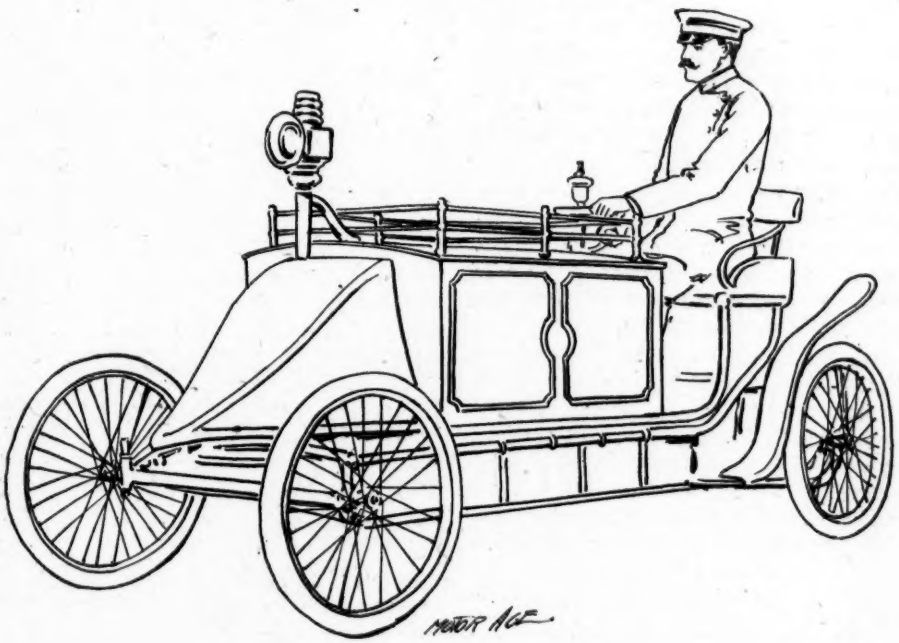
The following is a sample of the amusement which the present-day newspaper paragrapher makes for himself on the automobile problem: "About 10 o'clock this morning a horseless wagon, loaded with cowless milk, collided with a brainless rider on a chainless bicycle. The luckless wheelman was badly injured and,

being homeless, he was taken in a horseless cab to the home for the friendless."

The Austro-Hungarian consul at Madrid reports to his government that there is an excellent opening for the sale of motor cars in Spain, and he strongly urges those of his countrymen interested in the automobile trade to make a careful study of the territory mentioned, with a view of a successful and profitable introduction of their productions. There is not only a good sale of suitable cars to private customers, but there is also a fair scope for the introduction of motor car passenger and goods services between many places in the various provinces of Spain.

Mr. and Mrs. Wm. K. Vanderbilt, Jr., are touring through France in a De Dion motor carriage, making the rounds of the various watering places in the southern part of the country.

GERMAN POSTAL WAGON



The above illustration presents a German postal service automobile made on what is known as the Loutzky system of motor vehicle construction. It is driven by a five and one-half horse-power motor placed under the driver's seat and kept cool with water from a reservoir in front of the car and beneath the triangular shield. The circulation of the cooling water is provided with a pump driven by the motor. The controlling gear is all concentrated within easy reach. The motor drives the front axle and that transmits to the rear axle by means of a chain. The speed is regulated by a lever. The motor is started by a hand lever assisted by a foot lever to relieve it of some of the pressure. The brake is operated by another foot lever. The car is fitted with an electric alarm. The maximum speed is sixteen miles per hour.

NOTES OF INTEREST

There are 5,207 motocycles on which tax has been paid in France.

The trial trip of the first of the new automobile stages for use on Fifth avenue, New York city, was made February 4, and proved very flattering to the new omnibus.

State Senator Baldwin of Massachusetts has caught the fender fever and has introduced a bill providing that all automobiles be so equipped. He has company in the Chicago council.

It is said that the first electric automobile fire apparatus built in the United States is that now standing completed in a Chicago workshop. The machine in question has been endorsed by Chief Swenie.

Some of the swell set at New York have added to the charm of novelty obtained by automobile riding by establishing the highly original custom of automobile breakfasts, to which the participants go in horseless carriages.

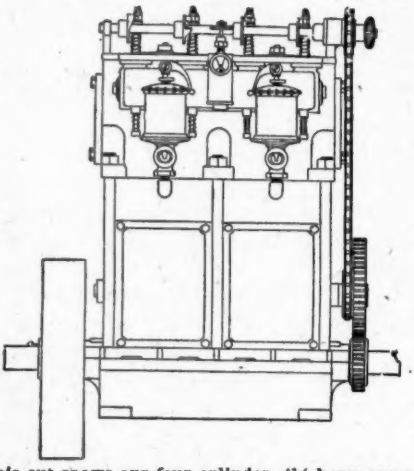
A second Boston wedding to and from which the guests rode in horseless carriages occurred last week. This time it was a combination Hebrew-Automobile affair. European papers report frequent automobile weddings in Paris.

An African traveler in the Congo region advocates the use of automobiles in the interior. The English army is evidently attempting to realize this anticipation, but at the present, it looks extremely doubtful that it will ever be able to take its steam army wagons much further into Africa than the outpost line of the Boers.

Buffalo is to have an auto-cab service within a few weeks. Charles R. Huntley of the Buffalo General Electric Co. and others are organizing a company to establish the service. Fifteen cabs have been ordered of the Woods Motor Vehicle Co. of Chicago and they will be put into service as soon as they are received.

USERS OF MOTOR-VEHICLES

Are invited to contribute letters giving experiences of interest, trips, tours, etc. Questions concerning any feature of motor-vehicles will be carefully answered. Address, The Editor, The Motor Age, 324 Dearborn St., Chicago.



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